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Survey study on Feeding Strategies, Challenge and Marketing of Beef Cattle Production in Ethiopia

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Abstract: The objectives of this survey was to identify the constraints and market opportunities on beef cattle production as well as to evaluate the export and domestic consumption of beef cattle in the study area. Hence, there are three beef cattle production systems practiced in Ethiopia. These are traditional, by-product and Harargue production systems. There is no strategic production of livestock for marketing except for some sales targeted to traditional Ethiopian festivals. Markets are dispersed to remote areas lacking price information. Both legal and illegal livestock marketing system are being operated at different magnitudes. The livestock marketing structure in the pastoralist areas follows four tiers. These are bush, primary, secondary and terminal markets. The basis of such classifications is mainly the number of animals supplied and market participants per market day. Small farmer exporters and traders are the major actors in the illegal cattle marketing system. While medium to large scale licensed exporters are dominantly operating in the legal system. The main challenges for beef cattle production and marketing are unofficial cross border trade dominated by influential personalities and illegal exporters. Limited access to production and market related information such as production systems, prices, competitors, consumer preferences and lack of capital investment in assets, equipment and input that would improve quality are the major challenges faced by marketing. High demand of animals by the local abattoirs, increasing official exports and increasing domestic meat consumption are the opportunities that will enhance beef cattle production and marketing system in Ethiopia.

Key words: Beef Cattle · Challenges · Marketing · Strategies · Ethiopia

INTRODUCTUION

Ethiopia, like most of the countries in sub-Saharan Africa, is heavily dependent on agriculture. The agricultural sector plays an important role in the overall development of the country's economy. This sector plays a major role in the national economy and it is the source of income and employment for the rural population [1]. Ethiopia has the leading livestock population in Africa and the animal population census [2]. Estimates of the livestock population of Ethiopia are 44.32 Million cattle, 23.62 Million sheep, 23.33 Million goats, 2.31 Million camels and over 42 Million poultry (excluding agro-pastoral and pastoral areas [3]. Estimates a 1.1% growth rate for cattle which is against a backdrop of 2.5% human population growth per annum. In other words, the livestock population growth has been lagging behind the human population growth.

Livestock systems represent a potential pathway out of poverty for many smallholders in the developing world like Ethiopia. The majority of the world's rural poor and a significant proportion of the urban poor, keep livestock and use them in a variety of ways that extend far beyond income generation. In many cases, livestock are a central component of smallholder risk management strategies [4]. The economic contribution of the livestock sub-sector in Ethiopia is also about 12% of the total and 33% of agricultural GDP and provides livelihood for 65% of the population [5].

Many Ethiopians, like other developing countries, do not consume adequate amount of meat. The few that do, however, maintain a meat diet of beef, sheep, goat and poultry. In 2001, 51% beef, 19% sheep, 14% goat and 15% poultry contributed to a meat diet composition. Most Ethiopians do not consume pork, in addition to many types of fishes, due to religious factor [6].

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Formally, Ethiopia exports approximately 200,000 livestock annually [7]. This is significantly higher than the annual official exports of cattle (12,934 head), sheep (13,554 head) and goats (1,247 head) between 1998 and 2003 [8]. In Ethiopia, recent studies estimated that annual illegal flow of livestock through boundaries reaches high.

The actual performance has remained very low, leaving most of the projected livestock off take for the unofficial cross-border export and the domestic market. These become barriers to understand and analyze the full range of activities required to bring a product (Live animals, meat) to final consumers passing through the different phases of production, marketing, processing and delivery to the consumers. It creates barriers to identify a market-focused collaboration among different stakeholders like ministry of agriculture, butchers and meat exporters, who produce and market value-added products [9].

The major challenges facing in the meat export abattoirs is lack of competition with their products in the domestic as well as the export markets has been limited by the underutilization of their meat processing capacities. Live animal marketing in the locality is inadequate and as a result the existing meat processing facilities operate at less than of their operational capacities [10]. This is apparently due to inadequate supply of the required quality live animals for meat processing by the export abattoirs which makes them less competitive in the global or national meat market. The export abattoirs are competing for the domestic supply of live cattle with the demand for live cattle for domestic consumption and for formal and informal (cross-border) trade. Therefore, the paper has the following specific review objectives

- To illustrate beef cattle production system and market opportunities practiced in and across the various region of Ethiopia.
- To administer the export and domestic consumption of beef cattle in and around the world.
- To pioneer the challenges and opportunities of beef cattle production and marketing in the Ethiopia.

Traditional Fattening System: Cattle are kept mainly for draft power, milk and manure production and are usually only sold when they are too old for these purposes, or drought or cash shortages force people to sell. Oxen are usually sold after the ploughing season while they are in poor body condition. Meat yields are low, beef is of poor quality and returns to farmers are often inadequate. Cattle in the lowlands are rarely fattened and are often sold in poor body condition and at low prices. In the lowland, where pastoralists do not use cattle for draft and sometimes fattened on natural pasture in good seasons, however much body weight is lost during long distance trekking to Addis Ababa and the animals may reach market in little better condition than culled highland stock. In average or poor seasons, lowland cattle are rarely fattened and often have to be sold in poor condition at low prices. These traditional systems are very inefficient because they do not use the proven opportunity to add weight and condition to cull animals before slaughter [11].

By-Product-Based Fattening System: Is a type in which agro industrial by-products such as molasses, cereal milling by-product and oilseed meals are the main sources of feed Ministry of Agriculture (MOA) began to help peasant farmers in Debre Zeit area to fatten purchased cull oxen using molasses and milling by-products. This has produced profitable results for the individuals involved and the number of animals fattened has increased every year to about 2,000 per annum. This fattening system is not recommended for other parts of Ethiopia, except places where oilseed cake is abundant and cheap [11].

Hararege Fattening System: Farmers buy young oxen from the adjacent low land pastoral areas, use them for ploughing for several years and then fatten and sell them before they become old and emaciated. This system is largely based on cut-and-carry (zero grazing) feeding of individually tethered animals in which free grazing is rare. Intensive feeding of the available feed supply to young oxen they are using for draught power could best describe this fattening practice. The feed types used for this purpose are entirely obtained from crop production especially from maize and sorghum. Pagot [12], describes that in Ethiopia the farmers fatten young bullocks at the edge of the fields with lower leaves taken from the stems of sorghum. Among the most common feed types used for fattening, thinning, leaf strip and part of maize and sorghum plants are major feeds offered to fattening animal during the main and early dry seasons. Farmers extend animal's daytime feeding up to night time and supplement the animal with common salt or locally available mineral licks twice a week. The night time feed offering is used to supplement the amount of day time dry matter consumption and to compensate under supply of feed during daytime as in the case when the farmer is away from his house. During short rainy season, they allow their oxen to graze at the edge of farm plots or roadsides for about three hours every morning before sunrise. In the cases where the farmer has more than one ox, he transfers the second one to his relative or person in the same village to feed for him after using for traction [6].

Fattening enterprises in western parts of the country typically take immature feeder animals and bring them to market weight for sale to slaughter. Cattle in these enterprises normally enter the feedlot at well under one year old and are fattened for six months. Fattening activity in the Amhara region, however, differs substantially from the above-mentioned enterprises. Smallholder farmers commonly fatten mature and therefore much older animals (5 to 7 years old) for short durations (Usually three months. On the other hand, some farmers purchase oxen specifically to fatten and sell them so as to get higher price per weight margins on each fattened animal. In such cases, animals are purchased based on their large skeletal frames and body conformation. In any case, whether purchased or own animals are used for fattening purposes, they have already reached their full skeletal size [11].

Beef Cattle Marketing: Markets are dispersed with remote markets lacking price information. Generally, the number of animals offered in the local market is usually greater than the number demanded, so there is excess supply. This effectively suppresses producer prices since the more mobile trader is better informed on market prices, while better information combined with excess supply place the trader in a better position during price negotiation. Livestock are generally traded by 'eye-ball' pricing and weighing livestock is uncommon. Prices are usually fixed by individual bargaining and depend mainly on supply and demand, which is heavily influenced by the season of the year and the occurrence of religious and cultural festivals. Ethiopia's livestock supply is heavily influenced by the severity of the dry season [8].

The livestock marketing structure follows a four-tier system, of which different actors involve in buying and selling of beef cattle in the market. The main actors of the first tier are local farmers and rural traders who transact at farm level with very minimal volume, 1-2 animals per transaction irrespective of species involved. Those small traders from different corners bring their livestock to the local market. Traders purchase a few large animals or a fairly large number of small animals for selling to the secondary markets. In both smaller and larger traders operate and traders and butchers from terminal markets come to buy animals. In the terminal market (4^{th} tire), big traders and butchers transact larger number of mainly slaughtered. From the terminal markets and slaughterhouses and slabs, meat reaches consumers through a different channel and a different set of traders/businesses [5, 13].

In Ethiopia, both legal and illegal livestock marketing systems are operating at different magnitudes. Small farmer exporters and traders are the major actors in the illegal cattle marketing system while medium to large scales licensed exporters are dominantly operating in the legal system. Most cattle sales are related to farm households' cash needs and commercial orientation. However, cattle sales are also induced by fear of theft and insecurity [14]. Unofficial cross-border trade is practiced in the eastern, western and southern and north western borderlands of Ethiopia. In addition to the Ethio-Sudan cross-border huge livestock trade, there are other important cross-border livestock trade operations in Ethio-Somalia, Ethio-Kenya and Ethio-Djibouti. Few medium to high quality female animals are also exported, which are used for slaughtering in Sudan or for live animals re-export to Egypt, Libya and Yemen. Most of the borders are characterized by arid and semi-arid agro-ecologies where livestock play dominant role in household livelihoods. Eastern Ethiopian/ Somaliland cross-border livestock trade accounts for the largest share among the four borders in terms of the volume and value of export from Ethiopia and port of Berber is the main outlet for livestock exports [15].

Ethiopia losses about 325,800 heads of cattle via informal cross-border trade of livestock and livestock products [15]. These exported cattle are exclusively sourced from pastoral areas and the pastoral areas can supply annually two millions of heads of cattle, by deducting the domestic demand and female animals. To meet local animal protein needs arising from population, urbanization and economic growth, beef cattle productivity has to increase. Commercial producers would be the first to be benefit but the stimulus of export prices would gradually be felt in the traditional sector which would be the main source of animal exports. Farmers are able to convert their livestock capital in to investment capital, enable to store their wealth in monetary form. This avoids the risk of loss during drought and disease outbreaks [16].

Beef Cattle Domestic and Export Market: Purchasing of live cattle at the markets is performed based on the requirements of the customers. Thus breed, sex, age, weight and sometimes color of the animal for the live export are the major criteria considered by the export abattoirs during purchase. Due to lack of weighing facilities, mostly cattle transaction is done 'based on evaluation and assessing the body conditions, which tend to be highly subjective [17].

The butcheries are also directly involved in buying animals from the markets and their objectives are for slaughtering and selling purposes at the periods when there is demand from the clients'. Most Ethiopian butchers purchase beef cattle for slaughtering and retailing meat in their butchers while others participate in buying animals from the market depending on their situation, either only during the holidays or other period of the year. Regarding the purchasing activity by the butcheries, again most purchase beef cattle from markets by their own, while some others used to purchase using their commission agents and brokers at the markets for supply and demand to determine price, a competitive situation must exist in the market [18].

Age and Weight Combination: Intact male animals between four and six years of age and with at least 280 kg in weight are preferred by the purchasing agents of the abattoirs which are based on the end market requirements. Thus, pastoralists tend to supply far larger numbers of these types of animals to the markets [19].

Most Ethiopian butchers typically sold only cattle meat. Reasons for this are the selling price of meat showed increment from the past times, the export market and the increment of the local demand for the cattle meat enhanced the price of meat and only after the export market opened the price for a kilogram of cattle meat domestically increased, rise of the local demand for beef, the lack of feed and its high cost if available and the high cost of transportation contributed a lot to the high price of meat. Similarly, a study by ACDI/VOCA [13], indicated that the increasing trends in the prices paid for animals by both abattoirs and live animal exporters has caused a subsequent increase in the domestic market purchase price for cattle, sheep and goats for local consumers, butchers and retailers.

Challenges: The annual outflow of beef cattle from Ethiopia through illicit (Informal) market is huge. The immediate destinations of this illicit export are Djibouti, Somalia, Sudan and Kenya which are further re–exported to the Middle East countries after meeting domestic demands [18]. The legal export of both live animal and processed meat is thus constrained due to shortage created by the illicit export. Recent studies estimate annual illegal flow of livestock through boundaries to be as high as 320,000 cattle [9]. This being the potential for export, the actual performance has remained very low, leaving most (55 to 85%) of the projected livestock off take for the unofficial cross-border export and the domestic market. The main sources for this illegal channel are mainly Somali region and Borenna of south east and southern Ethiopia, respectively [5].

Beef cattle is brought to market primarily from three sources: from farmers which produce the beef cattle, small scale to large scale producers organized in the form of cooperatives to fatten the cattle and some brokers which buy either from directly from producers and fattening cooperatives. Those animals brought to the market are exported legally by small and medium scale exporter and illegally by small scale exporter and farmers [20].

The main challenges faced by beef cattle production and marketing are Lack of well defined breeding program and production systems, Lack of an integral connection between the stakeholders involved in the production Chain, Inadequate market promotion and study tours to potential importing countries, Lack of efficient air transport for export of fresh and chilled meat, domination by influential personalities and illegal exporters, Limited access to market-related information (E.g. on prices, value chains, competitors Consumer preferences), Lack of capital to invest in assets, equipment and inputs that would improve quality [21], prevalence of disease, Feed and water shortage, Market surveillance problems and Inadequate infrastructure and Price seasonality and shortage of land for production and personal risks [22].

High Demand of Animals by the Local Abattoirs: The export abattoirs are required to ensure a consistent and continuous supply of meat in order to meet the demand of the customers in the importing countries. Thus, there is an urgent need for export abattoirs to devise alternative strategies to ensure adequate market supply of quality live animals to meet their processing needs in order to improve their efficiency and competitiveness [13], stated that there were seven abattoirs in Ethiopia which processed canned meat products mainly for the army, domestic market and some exports. These abattoirs are located in Addis Ababa, Melge Wondo, Dire Dawa, Kombolcha, Gondar and Debre Zeit. Of these plants, Melge Wondo was to some extent preparing frozen beef and that of Debre Zeit abattoir produced chilled beef, sheep and goat meat for both domestic and export markets. With policy reformations after government change in 1991 in response to the available potential for meat export and the liberalization policy, the number of export standard abattoirs has increased [19].

Official Exports: According to Daniel [20], there are few legal exporters engaged in the export of live animals and meat in the country. These exporters secure livestock from pastoral areas by themselves or through agents for export in live or meat form (Chilled mutton, goat meat and beef). Yitaye [23], estimated the annual potential for export at 72,000 metric tons of meat [10], identified the Middle East and North African countries which are considered important for the country's export in LLP to Saudi Arabia, United Arab Emirates, Bahrain, Yemen, Jordan, Kuwait, Oman, Qatar, Iran, Syria and Egypt. The annual demand of these countries is estimated to be 206,846 tons of meat and 12 million heads of live animals (Cattle, sheep and goats). Based on [9], the estimated national off take rates of 10% for cattle, pastoral areas of the country alone, could produce 734 000 heads of beef cattle per annum.

Domestic Consumption: The domestic meat demand is believed to increase with increasing literacy and family income. Meat consumption is often an indicator of the economic status of a country or an individual. People with a higher social or economic status demand a greater amount of high-quality meat products. The per capita consumption of meat in developed/industrialized countries is much higher than in developing countries. Countries whose population consumes the least amount of meat are located in Africa and Asia. Developed countries consumed a consistent level of 77 kg of meat *per capita* annually, while developing countries struggled to maintain a diet with only 25 kg of meat *per capita* annually. Ethiopians remained slightly below the meat intake of all low-income countries and consuming 9 kg per capita annually [6].

CONCLUSION AND RECOMMENDATION

Ethiopia predominantly is agro-pastoral production system in the lowlands and the mixed crop-livestock system in the highlands and central highlands. However, the production of beef cattle will remain low unless supported by intensive production system. There is little evidence of strategic production of livestock for marketing except some sales targeted to traditional Ethiopian festivals. Sales of live animals are taken as a last resort and large ruminants are generally sold when they are old, culled, or barren. Markets are dispersed with remote markets lacking price information. The annual outflow of beef cattle from Ethiopia through illicit (Informal) market is huge 320,000 cattle.The immediate destinations of this illicit export are Djibouti, Somalia, Sudan and Kenya which are further re-exported to the Middle East countries after meeting domestic demands. Both legal and illegal livestock marketing systems are operating at different magnitudes. Unofficial cross-border trade is practised in the eastern, western and southern and north western borderlands of Ethiopia. Some markets are also dominated by influential personalities and illegal exporters. Limited access to production and market-related information such as production systems, prices, value chains, competitors, consumer preferences and lack of capital to invest in assets, equipment and inputs that would improve quality are the major challenges of the market value chain. High demand of animals by the local abattoirs, increasing official exports and increasing domestic meat consumption are the opportunities that will enhance the system.Based on the above results the following are suggested.

Government should limit the activity of influencial and illegal traders; we have to improve the breeding and production system by selecting appropraite breeds and well trained breeders; enhance the coordination between different stakeholders to work harmoneously; well organized transport system for the transport of meat and live beef cattle as time permissible; establishing infomation accesses to get market related information; govenment should allocate bughets to expand the practising of beef cattle production; intervention of veterinarians in disease prevention and daignosis of this production system and improve the feeding statuse of the animal.

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